RESPONSE TO RESTRICTION REQUIREMENT AND ELECTION OF SPECIES

Applicant hereby elects the subject matter of Species II, claims 2-21, for prosecution on the merits. Applicant reserves the right to file divisional applications on the non-elected subject matter.

COMMENTS REGARDING THE AMENDMENTS

The above amendments were made in an effort to advance the prosecution of the present application and to address issues raised in the Office Action.

Antecedent basis for the amendments to claim 20 are found generally in the specification and, for example on pages 150, 151 and 238 of the Patent Application.

Antecedent basis for the amendment to claim 9 may be found generally in the specification and, for example, on page 143, lines 20-30. It is also to be noted that references are incorporated in further support of these terms on Page 30, lines 18ff (U.S. Patent No. 3,709,706 (Sowman) discloses solid and hollow ceramic microspheres; and page 37, lines 6ff (U.S. Patent No. 4,421,562 (Sands) discloses microspheres formed by spraying.

SUMMARY OF THE OFFICE ACTION

1) Claims have been objected to and rejected under various provisions of 35 USC 112.

2) Claims 2, 3, 6, 8, 11, 12, 15 and 17. have been rejected under 35U.S.C § 102(b) as being anticipated by Berg (5,984,988).

3) Claims 4 and 13 have been Rejected under 35U.S.C. 103(a) as unpatentable over Berg(5,984,988) in light of Howard (3,916,584) and in further view of the rejections of Claims 2 and 11. The use of dehydrating liquid is commonly practiced and well known in the art.

4) Claims 5 and 14 have been rejected under 35U.S.C. 103(a) as unpatentable over Berg (5,984,988) in light of Eisenberg (4,393,021) and in further view of the rejections of Claims 2 and 11.

5) Claims 7 and 16 have been rejected under 35U.S.C. 103 (a) as unpatentable over Berg (5,984,988) in light of Culler (6,521,004) and the Quadro Engineering Incorporated Comil® product description.

6) Claims 9 and 10 have been rejected under 35U.S.C. 103(a) as unpatentable over Berg (5,984,988) (listed as 6,521,004, Culler?) in view of Mathews (3,838,998).

7) Claims 9 and 10 have been rejected under 35U.S.C. 103(a) as unpatentable over Berg (5,984,988) in view of Cai (Phys Rev Lett. 2202 Dec:89(23):235501.) Cai indicates that "gamma-alumina is known to transform to theta-alumina and finally to alpha-alumina upon thermal treatment. It is asserted to be obvious to choose gamma-alumina as taught by Cai from the Claim 18 material list to be converted into alpha alumina in the termal treatment set by Berg.

8) Claims 19 and 20 Rejected under 35U.S.C. 103(a) as unpatentable over Berg (5,984,988) in view of Culler (6,521,004).

9) Claim 19 and 20 have been rejected under 35U.S.C. 103(a) as unpatentable over Berg (5,984,988).

10) Claim 19 has been rejected under 35U.S.C. 103(a) as unpatentable over Berg (5,984,988) in view of in view of Ramanath (5,834,569).

ARGUMENTS AND RESPONSE TO THE OFFICE ACTION

1) Claims have been objected to and rejected under various provisions of 35 USC 112.

The claims that were objected to or rejected have been amended to address the issues raised in the Office Action.

2) Claims 2, 3, 6, 8, 11, 12, 15 and 17. have been rejected under 35U.S.C § 102(b) as being anticipated by Berg (5,984,988).

Before addressing the specific limitations in the claims that clearly distinguish the novelty of the present invention as claimed from the disclosure of Berg, it is believed to be worthwhile to compare the background technology of Berg versus the nature of the invention provided in the present Application.

BERG

Berg manufactures individual sharp–edged abrasive particles directly from precursor aluminum oxide material. To produce the abrasive particles the disclosure teaches filling sheet cavity through-holes with an alpha alumina precursor dispersion mixture solution to manufacture hardened abrasive particles having sharp edges from the alpha alumina. Some of the sheets have flat-surfaced through-hole cavities that provide sharp edges to the dispersion entities that are contained in the level-filled sheet cavities. The volume of each of the liquid-state dispersion entities is equal to the contained-volume of the corresponding individual cavity holes.

The entity geometric shapes are initially established when the entities are formed by the mold cavities. The ejected shrunken entities have the same shapes as the mold cavities; the same-shape entities are just smaller than before they were shrunk. The cavity holes act as molds to shape each individual entity with entity-flat surfaces that intersect each other at angles that are approximately 90 degrees, or less, to form sharp knife-like edges at the intersections of the flat surfaces of each entity. The abrasive precursor entities are then solidified while they are in residence within the confines of the mold cavities so that most of the individual dispersion entities retain all of their sharp

edges <ins>after</ins> they are ejected from the cavity molds. **<ins>The shapes must retain these sharp edges as that is the function and intended prupose of the Berg process</ins>**.

During the process of solidification of the dispersion entities by drying, while they reside within the cavity molds, the dispersion experiences significant shrinkage due to the loss of water from the dispersion as a result of the drying process. The Berg dispersion typically loses 40% of the water during the in-cavity drying process. The shrunken entity, however, retains and must retain the general geometric shape of the non-shrunken entity, especially including the sharp entity edges. Because the shrunken dispersion entity is now smaller than the mold due to this shrinkage, gravity alone provides a sufficiently large force on the shrunken entities that they freely fall out of the mold cavities. Berg also describes the use of a "low pressure" to aid in the entity ejection from the mold cavities. It is important to the reference that the ejected dispersion entities retain the sharp entity edges and general entity geometric configurations after entity ejection.

Some further entity shrinkage after mold ejection takes place during the calcining and sintering heat treatment steps. The hardened abrasive particles that are produced by this mold cavity process are used directly as abrasive particles that still have the same shape as their mold-ejected entities. The mold-formed sharp edges are used to cut away workpiece material when these hardened entities are in abrading contact with a workpiece. These hardened abrasive particles are coated as-is on abrasive articles; they are not broken or crushed prior to coating to develop new sharp cutting edges prior to coating on an abrasive article.

There is of course absolutely no teaching in Berg of using "excessive" ejection forces to dislodge particles. Such a teaching would be destructive of the intent of Berg to form particles of specific functional shapes to enable his technology. If significantly large ejection forces are applied to his dispersion entities to dislodge them from the mold cavities with **any effective result** that the sharp edges of the individual dispersion entities become rounded, the resultant non-sharp rounded edges would lose the abrasive cutting capability that is the objective of Berg. It is well established that it cannot be obvious to destroy the benefits and function taught by a reference for no benefit, and it is further unreasonable to assert that it is inherent that excessive forces would be used that destroy the function of the reference, with the sole purpose being to meet the limitation of the pending application. The edge-rounding of the ejected particle of Berg would have to be

a single one-time event that occurs at the time that the particle is ejected from the mold cavity, as once the semi-hardened shape had been obtained, no other forces are likely to occur to reshape the molded shape of the ejected particles. No such forces are taught by Berg.

It is to be further noted that any of the Berg indicated "Rounding" of some (only) of the sharp edges of the dispersion precursor entities can occur when a through-hole mold cavity is filled to an overflowing condition is not a teaching of the formation of a **spherical particle as recited in claim 2. Merely rounding the edges of a sharp edged shaped particle, in which sharp edges are an objective of the Berg teaching is not the provision of a spherical particle.**

In this *de minibus* teaching of Berg, an undesirable part of the dispersion extends past the sharp cavity-shape delineation edges onto the flat between-hole surface of the cavity sheet. Even though the main body of dispersion entity that is contained in the mold cavity shrinks away from the cavity walls prior to ejection, the overflow-portion of the dispersion entity extends along the sheet surface in an overhanging fashion to form a thin lip that extends out from the body of the entity. Because the thin lip extends past the cavity opening, gravity does not supply enough force to fracture this overhanging lip to allow the shrunken entity to freely drop out of the mold cavity. Berg's application of a low pressure only to the near-side (pressure side) of the sheet cavities results in an entity ejection force that is applied externally only to the near-side of the dispersion entity that is retrained from freely passing through a mold cavity through-hole. The application of entity ejection pressures is a single-event occurrence. This externally-applied pressure force breaks off the thin overhanging dispersion lip from the dispersion entity body thereby rounding- off the entity body but only at the locations of the over hanging lips. **This does not produce anything that anyone skilled in the art would consider to be a spherical particle as recited in claim 2.** The reduced-size body at these lip sites allows the dispersion entity to pass through the cavity opening. All of the non-lip edges of the entities are not rounded during this entity ejection event. The entity is thus ejected from the cavity **as a non-spherical particle.**

Little, if any, further rounding of the particle edges occurs after the particle is ejected from the mold cavity, and **even any theoretical further rounding is not taught or suggested to destroy the sharp-edged desired structure of Berg to form the spherical particles claimed in claim 2.** The particle ejection forces are no longer

applied to the individual ejected particles after ejection. After an entity is separated from the mold cavity structure even application of "high pressure" will not cause further rounding of the entity edges. Here, the ejected entity is already in a substantially solid state.. Any post-ejection applied pressures will not preferentially "chip away" any portion of the solid entity to form it into a spherical shape, and because of the substantially solid state of the particles, moderate time frame external pressures would not reshape the particles to spherical shapes. Ejected sharp-edged precursor solidified entities would remain sharp (and not become rounded) as the sharp edge is required by Berg to produce hardened abrasive particles that individually have many sharp cutting edges. It is unreasonable to assume that berg allows within his disclosure the operation of process parameters that would destroy the objective of his technology.

The rejections assumption of an extreme case where the rounding effect is presumed, where the entity "assumes" the shape of a sphere and this spherical entity is hardened, all of the cutting edges are lost on this hardened entity. That would destroy the functionality and purpose and disclosed benefit of berg, and is not taught or inherent in Berg. Also, the sizes of these extreme "spherical" shapes would be random in size. The rounded shaped particles would be smaller in size than the original particles because of the edge material removal during the rounding event. Coating these hard smooth-surfaced spherical shaped aluminum oxide aluminum oxide particles on a backing sheet would not produce an abrasive article that could effectively abrade a workpiece surface "as is."

BACKGROUND OF DUESCHER

A liquid dispersion mixture comprised of oxide material and water is level-filled in sheet cavity through-holes to establish the controlled volumetric size of each dispersion entity. When the **liquid-state dispersion entities having non-spherical shapes** are ejected from the mold cavities using a fluid jet, the ejected liquid dispersion entities individually assume spherical shapes due to surface tension forces acting on the entitles. If the ejected non-spherical entities were already solidified, as is the case with Berg, then surface tension forces would not re-form the solidified entities into spheres because, in part, solidified entities do not have surface tension forces. Spherical entity shapes are formed from the non-spherical liquid entities that are ejected from the cavities. The non-ejected entities can not have spherical shapes because the level-filling action on

the dispersion filled cell through-holes produces flat surfaces on each entity that resides in the cell holes. Spherical entity shapes are formed by the surface tension forces independent of the geometric shape that each mold cavity has. For instance, rectangular or circular mold cavity shapes will both produce a liquid spherical dispersion entity when these flat surfaced liquid entities are acted on by surface tension forces.

Surface tension forces are not "applied forces" that are applied to the external surface of an ejected liquid dispersion entity. Rather, they simply exist within the fluid body. They originate as an artifact of the entity having a liquid-state. Also, surface tension forces do not act on a dispersion entity that is located within a cavity in a manner that would eject the entity from the cavity.

These internal surface tension forces are not to be confused with the external applied fluid-jet forces that are directed to a single external surface of the dispersion entity as it resides in the through-hole cavity. As a fluid jet impinges on the near-side (fluid jet side) of the sheet cavities, a resultant fluid dynamic force is applied externally to the near-side of the dispersion entity. This fluid jet force ejects the dispersion entity out of the cavity whereby the entity exits the far-side of the cavity.

Claim 2, as amended recites:

> "...h) wherein the ejected independent liquid mixture solution lump entities are shaped into independent spherical entities by force comprising liquid mixture solution surface tension forces [~~or other forces acting on the lump entities~~];
>
> i) the independent spherical entities are introduced into and subjected to a solidification environment wherein the independent spherical entities become solidified to form loose, green, spherical beads; and
>
> j) firing the loose, green, spherical beads at high temperatures to produce beads."

It can be seen from these limitations that the claims recite "spherical particles" (which are not disclosed by Berg as shown in the above arguments, and that liquid entities are ejected from the compartments, which is also clearly not shown by Berg. The claims also recite that the ejected liquid is shaped into a sphere by at least surface tension, again a step not taught by berg. Berg has been clearly shown to fail to teach the totality of limitations of claim 2 as

presented above. Neither claim 2 nor any claim dependent therefrom can be rejected under 35 USC 102(b) and this rejection must be withdrawn.

Claim 11 cannot be rejected under 35 USC 102(b) over Berg for the same or similar reasons described above with respect to claim 2. Claim 11 recites:

> "...e) mixing materials into a <u>liquid</u> solution, the <u>liquid</u> mixture solution comprising abrasive particles, an <u>inorganic vitrifiable</u> oxide[;] or a combination of <u>inorganic vitrifiable</u> oxides, and water or solvents or a combination thereof;
>
> <u>f)</u> filling the cell sheet holes with the <u>liquid</u> mixture solution to form mixture volumes wherein the volume of mixture solution contained in each mixture volume is equal to the cell sheet volume; i) ejecting the <u>liquid</u> mixture volumes from the cell sheet by subjecting the mixture solution contained in each cell to an impinging jet of fluid wherein the impact of the impinging jet of fluid dislocates the <u>liquid</u> mixture volumes from the cell sheet thereby forming independent <u>liquid</u> mixture solution lump entities;
>
> <u>g)</u> wherein the ejected independent <u>liquid</u> mixture solution lump entities are shaped into independent spherical entities by <u>at least</u> mixture solution surface tension forces;"

<u>Because of the presence of these limitations, the claims cannot be rejected as proposed in the Office Action.</u> The rejection must be withdrawn.

Applicants further disagree with respect to the rejection of claim 11 under this provision with respect to the comments made by the rejection with regard to the green state. Applicants also not, for the record, at this time, that green has no required meaning of color, but refers to the art-recognized green state of inorganic oxides. Green agglomerates are formed when enough water is removed from the dispersion to form agglomerates that do not stick to each other. Sources of this statement are described in the present specification and are listed here:

1. "<u>Water is removed</u> from the dispersed slurry and surface tension draws the slurry into spheroidal composites <u>to form</u> <u>green composite abrasive granules</u>." (pg 31, L22ff).

2. "The dehydrated <u>green composite</u> generally comprises a metal oxide or metal oxide precursor, volatile solvent, e.g., water, alcohol, or other fugitives and about 40 to 80 weight percent equivalent solids, including both matrix and abrasive, and the solidified composites are dry in the

sense that they do not stick to one another and will retain their shape." (pg 31, L28ff).

3. "Agglomerate beads are solidified into green state spherical shapes when the water component of the water-based slurry agglomerate is drawn out at the agglomerate surface by the dehydrating liquid or by the heated air." (pg 146, L20ff).

In addition, Berg states that "It is preferred that a sufficient amount of volatile component be removed from the dispersion so that the precursors of the abrasive particles can be easily removed from the cavities of the mold. Typically, up to 40% of the liquid is removed from the dispersion in this step. At this point the precursors of the abrasive particles are sufficiently nonsticky that they will not stick to one another when they are removed from the mold" (C7, L19ff).

He rejection refers to Berg is somewhat askew of the issue. The Berg description at (C7, L46-58) does not result in the stated interpretation stated as: "Typically, the precursors of the abrasive particles will be dried (outside of the mold".

Instead, the (C7, L46-58) statement is, as written:

> "The precursors of the abrasive particles **can be** further **dried outside of the mold**. If the dispersion is dried to the desired level in the mold, this additional drying step is not necessary. However, in some instances it may be economical to employ this additional drying step to minimize the time that the dispersion resides in the mold. During this additional drying step, care must be taken to prevent cracks from forming in the precursors of the abrasive particles. Typically, the precursors of the abrasive particles will be dried for from about 10 to 480 minutes, preferably from 120 to 400 minutes, at a temperature from about 50°C. to about 160°C., preferably from about 120°C. to about 150°C." (emphasis and underlining added)

The Berg dispersion particles are in a green state when they are dehydrated sufficiently to shrink enough to drop out of his mold cavities and where they retain their sharp particle edges. As they are in a green state at the time that they are ejected from the cavities, they cannot thereafter be converted to a green state.

3) Claims 5 and 14 have been rejected under 35U.S.C. 103(a) as unpatentable over Berg (5,984,988) in light of Eisenberg (4,393,021) and in further view of the rejections of Claims 2 and 11.

All rejections of claim dependent from claims 2 and 11 in this rejection are inherently defective for the reasons given above with respect to the failure of Berg to teach the limitations in totality of claims 2 and 11. No additional reference in this rejection has been cited as showing reasons for destroying the function and purpose of Berg that differentiates Berg from the claims subject matter of claims 2 and 11. In the absence of such a specific teaching, this rejection must fail at least for this reason.

Additionally, Eisenberg cannot be combined with Berg without destroying the objectives of Berg. It would not be possible to substitute an Eisenberg woven screen for berg's mold belt to manufacture Berg's dispersion entities. The cells formed by the individual interleaved wire strands in the woven screen are interconnected with adjacent cells. The cells "appear" to be separated by the wire strands as viewed from the top flat surface of the screen. However, the actual screen thickness results from the composite thickness of individual wires that are bent around perpendicular wires where the screen thickness is often equal to three times the diameter of the woven wires. Adjacent "cell volumes" are contiguous across the joints formed by the perpendicular woven wires. Level-filling the screen with Berg's dispersion creates adjacent cell dispersion entities that are joined together across these perpendicular wire joints. When Berg dries his screen-cell entitles, the entities shrink and some entities would pull themselves apart from each other at the screen joints. However, the entity shrinkage will not be sufficient that the non-joined solidified entities will pass through the screen openings. The entities will remain lodged in the screen mesh as trapped by the portions of the entity bodies that extended across the woven wire joints. Berg can not use a woven screen to process his dispersion entities.

4) Claims 7 and 16 have been rejected under 35U.S.C. 103 (a) as unpatentable over Berg (5,984,988) in light of Culler (6,521,004) and the Quadro Engineering Incorporated Comil® product description.

All rejections of claim dependent from claims 2 and 11 in this rejection are inherently defective for the reasons given above with respect to the failure of Berg to teach the limitations in totality of claims 2 and 11. No additional reference in this rejection has been cited as showing reasons for destroying the function and purpose of Berg that differentiates Berg from the claims subject matter of claims 2 and 11. In the absence of such a specific teaching, this rejection must fail at least for this reason.

There is also a further defect in the teaching of Culler that prevents this rejection form establishing obviousness. **Berg** level fills mold cavities with a liquid dispersion and **solidifies** the dispersion by drying **prior to ejecting** the dispersion cavity entities from the cavities. The shapes of the ejected Berg particles are not changed after ejection. Also, the solidified entities are **not spherical** in shape.

Culler extrudes a mixture of abrasive particles into **filaments** that are solidified and then **broken** into abrasive agglomerate **particles**. The solidified entities are not spherical in shape. Neither the Berg nor Culler processes, or a combination of the Berg and Culler processes, produce ejected liquid abrasive particle filled abrasive dispersion entities that can be acted on by surface tension forces to form the entities into spherical shaped entities. There is no other disclosed mechanism that can be used with the Berg or Culler processes that can produce <u>equal sized</u> spherical abrasive agglomerate beads.

It also would not be <u>obvious</u> to modify <u>Berg's</u> <u>belt</u> <u>mold</u> by <u>substituting</u> <u>Culler's</u> <u>cone screen</u> and impeller. Provision must be made to dry Berg's dispersion entities while they reside in the mold cavities for them to assume the sharp edged three dimensional shape of the cavities before they are ejected. Culler extrudes his dispersion filaments that break off at random lengths which are then hardened and fractured into abrasive particles.

Furthermore, it would not be obvious to incorporate (sharp) diamond particles into the erodible matrix material of the Berg invention according to the teachings of Culler. It is not possible or desirable to incorporate individual diamond abrasive particles into solidified hardened aluminum oxide abrasive particles.

5) Claims 9 and 10 have been rejected under 35U.S.C. 103(a) as unpatentable over Berg (5,984,988) (listed as 6,521,004, Culler?) in view of Mathews (3,838,998).

All rejections of claim dependent from claims 2 and 11 in this rejection are inherently defective for the reasons given above with respect to the failure of Berg to teach the limitations in totality of claims 2 and 11. No additional reference in this rejection has been cited as showing reasons for destroying the function and purpose of Berg that differentiates Berg from the claims subject matter of claims 2 and 11. In the absence of such a specific teaching, this rejection must fail at least for this reason.

Additionally, the Matthews reference provides capability that essentially teaches against the possibility of combination with Berg. Berg's process produces solid dispersion entities that are solidified prior to ejection from the mold. The addition of Mathew's bloating agent to Berg's dispersion will not produce solidified hollow beads that are formed while the entities are located in the molds. The particles will still retain the shape of the mold cavities. Berg depends upon his dispersion entities shrinking while they are located in the mold cavities in order that they freely drop out of the cavities. The bloating agent would instead expand the individual entities and prevent their ejection from the Berg mold.

To form equal sized hollow beads, it is necessary to form equal volume entities that are made from a dispersion that contains a "chemical agent" that forms a gas upon heating, ejecting these liquid entities from the mold cavities and then subjecting the now-spherical shaped entities to high temperatures. The high temperatures form the hollow spheres and also vitrify the beads to produce glassy surfaces.

6) Claims 9 and 10 have been rejected under 35U.S.C. 103(a) as unpatentable over Berg (5,984,988) in view of Cai (Phys Rev Lett. 2202 Dec:89(23):235501.) Cai indicates that "gamma-alumina is known to transform to theta-alumina and finally to alpha-alumina upon thermal treatment. It is asserted to be obvious to choose gamma-alumina as taught by Cai from the Claim 18 material list to be converted into alpha alumina in the thermal treatment set by Berg.

All rejections of claim dependent from claims 2 and 11 in this rejection are inherently defective for the reasons given above with respect to the failure of Berg to teach the limitations in totality of claims 2 and 11. No additional reference in this rejection has been cited as showing reasons for destroying the function and purpose of Berg that differentiates Berg from the claims subject matter of claims 2 and 11. In the absence of such a specific teaching, this rejection must fail at least for this reason.

7) Claims 19 and 20 Rejected under 35U.S.C. 103(a) as unpatentable over Berg (5,984,988) in view of Culler (6,521,004).

All rejections of claim dependent from claims 2 and 11 in this rejection are inherently defective for the reasons given above with respect to the failure of Berg to teach the limitations in totality of claims 2 and 11. No additional reference in this rejection has been cited as showing reasons for destroying the function and purpose of Berg that differentiates Berg from the claims subject matter of claims 2 and 11. In the absence of such a specific teaching, this rejection must fail at least for this reason and the other reasons given above with respect to Culler.

8) Claim 19 and 20 have been rejected under 35U.S.C. 103(a) as unpatentable over Berg (5,984,988).

All rejections of claim dependent from claims 2 and 11 in this rejection are inherently defective for the reasons given above with respect to the failure of Berg to teach the limitations in totality of claims 2 and 11. No additional reference in this rejection has been cited as showing reasons for destroying the function and purpose of Berg that differentiates Berg from the claims subject matter of claims 2 and 11. In the absence of such a specific teaching, this rejection must fail at least for this reason.

9) Claim 19 has been rejected under 35U.S.C. 103(a) as unpatentable over Berg (5,984,988) in view of in view of Ramanath (5,834,569).

All rejections of claim dependent from claims 2 and 11 in this rejection are inherently defective for the reasons given above with respect to the failure of Berg to teach the

limitations in totality of claims 2 and 11. No additional reference in this rejection has been cited as showing reasons for destroying the function and purpose of Berg that differentiates Berg from the claims subject matter of claims 2 and 11. In the absence of such a specific teaching, this rejection must fail at least for this reason.

Additionally, it would not be obvious to incorporate Ramanath's color-coding scheme to the abrasive particles of the Berg process to produce spherical abrasive agglomerate beads.

Additional Comments

The reference to the Howard teachings in the rejections is non-instructive assertion that liquid extraction would further render obvious the process of the claims. It would not be obvious to solidify Berg's abrasive precursor entities in Howard's dehydrating liquid. Berg's mold cavities would have to be filled with the liquid dispersion and then the mold would have to be submerged in the liquid to solidify and shrink the dispersion entities while the entities reside in the mold cavities. There are many unknown technology issues related to the processes of solidifying, shrinking and ejecting the solidified entities while submerged in a liquid environment as compared to the simple Berg-described processes that take place in a heated air environment. There are further potential process complications related to a liquid system in general. These include the application of pressure forces to dislodge submerged cavity-trapped entities, the collection of submerged ejected entities, the separation of the liquid from the entities and the facility provision of liquid process equipment that handles explosive liquids or hot oils.

It is speculation that the substitute use of a liquid environment provides any attractive benefits as compared to the Berg hot air environment that would make it obvious to substitute a liquid dehydrating system for Berg's hot air system.

The final fault in this reference is that no matter how liquid is extracted from the materials of Berg while they are in the cavities, they will then retain their **necessary and required sharp-edged state**. The reference and resulting process would still not meet the limitations argued above with respect to the lack of teaching of removal of liquid mass from cavities, subsequent spheroidal shaping, and subsequent green state formation. The Howard reference cannot correct the underlying defects of the Berg reference.

CONCLUSIONS

Applicant has fully responded to the Office Action.

All claims are believed to be in condition for allowance.

Authorization is hereby given to charge any additional fees or credit any overpayments that may be deemed necessary to Deposit Account Number 50-1391.

Respectfully submitted,

WAYNE DUESCHER

By His Representatives,

MARK A. LITMAN & ASSOCIATES, P.A.
York Business Center, Suite 205
3209 West 76th Street
Edina, Minnesota 55435
(952) 832-9090

Date: 18 OCTOBER 2006 By: ______________________
Mark A. Litman
Reg. No. 26,390

CERTIFICATE UNDER 37 C.F.R. 1.8: The undersigned hereby certifies that this Transmittal Letter and the paper, as described herein, are being deposited in the United States Postal Service, as first class mail, with sufficient postage, in an envelope addressed to: Mail Stop AMENDMENT, Commissioner for Patents, PO Box 1450, Alexandria, VA 22313-1450 on 18 OCTOBER 2006.

Mark A. Litman
Name

Signature